WHAT IS CLAIMED IS:

1. A laser driver for generating a beam of coherent light comprising:

at least two laser diodes mounted in combination with a single thermo-electric temperature control means; and

a microprocessor for controlling and/or monitoring the activation of said laser diodes and said thermo-electric temperature control means.

2. A method of controlling and/or monitoring a laser diode with a microprocessor having memory for storage of date, the method comprising:

storing in said memory power-safety parameter limits for said laser diode;

monitoring power safety parameters of said laser diode with said microprocessor during operation of said laser diode; and

disabling operation of said laser diode whenever said one or more parameters are exceeded.

3. The method of claim 2 further comprising a step of reenabling operation of said laser diode upon the occurrence of a predetermined contingency.

4. The method of claim 2 wherein said parameters include laser pulse duration and laser pulse peak output power.

5. The method of claim 4 wherein said microprocessor records the laser pulse start time

and laser pulse stop time of said laser diode when said laser diode is activated.

6. The method of claim 4 wherein said microprocessor records the output power of said laser diode when said laser diode is activated.

7. The method of claim 2 wherein a plurality of discrete power safety parameter limits are stored in said microprocessor and said microprocessor extrapolates a curve for determining said parameter limits for each input parameter.

8. A laser driver control system comprising:

a remote microprocessor;

a laser driver printed control board;

a microprocessor on said printed control board;

at least one laser driver and a corresponding laser diode on said printed control board; and

a serial communication between said host microprocessor and said laser driver.

9. The system of claim 8 further comprising a thermo-electric temperature regulating device.

10. The system of claim 9 further comprising a heat sink thermally connected to said thermo-electric temperature regulating device.

11. The system of claim 8 comprising a plurality of laser drivers on said printed control board and corresponding laser diodes.

12. A method of controlling a laser diode comprising:

activating a control circuit to said laser diode at a current level less than the current threshold to activate said laser diode;

activating said laser diode by increasing the current in said control circuit above said threshold for a specified duration; and

reducing said current below said threshold to reactivate said laser diode.

13. A laser driver control system comprising:

at least one laser diode, a circuit for sensing the current through said laser diode, comparator for comparing said current to a predetermined value, and power supply switch for disabling said current to said laser diode if said current exceeds said value;

a power control circuit loop including the components of said sensing circuit, said comparator and power supply switch operably connected to a microprocessor to positively verify operation of said components, and means to disable said laser diode if operation of any of said components is not positively verified; and

a remote computer monitoring the pulse frequency and duration of said laser diode and means to disable said laser diode if predetermined pulse and duration values are exceeded.

14. A laser driver control circuit containing MOSFET connected to the power input of said circuit which allows the preselected input power polarity to pass and which turns off if an opposite input power polarity is received.